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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE • JUNE 23, 1945



Selling Health
See Page 394

A SCIENCE SERVICE PUBLICATION



RCA Super-FM "soundproofs the air"... eliminates static and other interferences.

RCA Super-FM...storms can be seen but not heard

With RCA Super-FM radio, the most violent thunderstorm becomes a "polite little shower." It can be seen, but never interrupts broadcast reception.

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George L. Beers, Assistant Director of Engineering for the RCA Victor Division, listens to the RCA Super-FM that he developed. Super-FM provides greater ease in tuning and a higher degree of selectivity as well as freedom from noise and interference.

RADIO CORPORATION of AMERICA

RCA BUILDING, RADIO CITY, NEW YORK 20



MEDICINE

Three Medical Successes

Boy with violin chest, man given up for dead now well, and a blind woman who recovered enough sight to sew, seen at Nutrition Clinic.

► Three cases from a medical reporter's notebook, recorded while visiting the Nutrition Clinic at Hillman Hospital in Birmingham, Ala.:

Mr. L., gaunt and waxy-white except where the rash of pellagra darkened and reddened his skin, sat in his front yard, "expecting the end in two or three days." A nurse driving by saw from the road how wretchedly ill he looked and asked if he would not come to the hospital. Mr. L. replied that it was no use, his end was at hand. His daughter, however, overheard the conversation. Inspired by the hope of help for her father, she took him to the clinic. That was in 1936.

Today he walked spryly into the clinic for a check-up. He feels and looks well and has been working at the fishing camp he runs ever since his discharge from the hospital almost 10 years ago. Vitamins and good diet saved him.

The doctors still see him regularly for check-ups because he cooks for himself and widowers who "bach it" do not always eat as well as they should.

George, a little Negro boy aged three, has a condition so rare doctors today almost never see it. He is far more unusual than one of the upside-down stomach children you have read about. He is the boy with the violin chest.

With his shirt off, his malformed chest above his pot belly really does look like a fiddle, the sides curving in toward the center and out again.

George has rickets in an unusually severe form. But he is getting cod liver oil now and he is going to get well. When he first came to the clinic some months ago, he was literally walking on his uppers. His legs were so bowed that the few steps he could take were made on the tops of his feet. His legs are still bowed but they have already straightened enough so he can walk on the soles of his feet and with fair speed.

"I can see well enough to do my sewing now," Mrs. M. declared triumphantly.

A few months ago she could not see at all. Both her eyes looked as if covered by sheets of frosted glass. The eye doctors decided they would have to be

removed and she had come to the hospital for the operation.

It is by grace of riboflavin that she still has both eyes and good vision in one. After she had entered the hospital for the operation, Dr. Tom Spies, director of the Nutrition Clinic, and his staff heard about her and saw her eyes. They thought her blindness might have come from lack of riboflavin. This is one of the B vitamins and lack of it can lead to severe eye trouble, among other difficulties.

So they asked to be allowed to treat her with huge doses of the vitamin before the eyes were removed. They knew it could not do any harm and they believed it might help.

They failed to save the sight of one

eye. The condition had gone on too long to be reversed. It is still frosted over and sightless. But the other is now clear and keen and Mrs. M. is happy in the ability to do everything for herself, including her own sewing and darning.

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MEDICINE

Malaria Cases in Oregon Traced to Soldier

► A 12-YEAR-OLD girl and a grown woman living in a rural section of Oregon have contracted malaria from a soldier returned from the Southwest Pacific, Dr. S. B. Osgood, health officer of Josephine County, Ore., reported. (*Journal, American Medical Association*, June 16.)

These are the only cases of malaria occurring in this rural Oregon area as far back as medical records go, Dr. Osgood states. Nevertheless, Dr. M. E. Corthell, of Grants Pass, Ore., was so alert that the diagnosis of malaria was made in the first case within two hours of the time the little girl came to his office.

She lived in an unscreened house which was only partially finished and lacked



GETS RESULTS!—On the left, a deadly fungus known as late blight has killed the plants. The row on the right has been sprayed with a new and powerful fungicide known as Dithane. These healthy plants promise a good crop, yielding over 100 bushels of potatoes per acre more than plots sprayed with conventional fungicides. The new compound, carrying the forbidding chemical name of diethylene sodium bisdithiocarbamate, is also proving deadly to insects.

panes in several of the windows. The veteran, her great-uncle who had contracted malaria in Australia, lived in a tent about 50 feet from her house for about two weeks before she started having chills and fever. Mosquitoes were plentiful and on examination were found to be the malaria-spreading variety. Existence of this kind of mosquitoes in this rural Oregon area had not previously

even been suspected.

The second case was a neighbor whose house was well within the mosquito range of the returned soldier's tent.

A logging partner of the returned soldier who shared the tent may also have contracted malaria. He has returned to Texas and so far Dr. Osgood has been unable to get in touch with him.

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GEOLOGY

Equal Access to Minerals

Wise administration of the world's supply for all peaceful nations lies at the very heart of the problem of world peace, leading geologist declares.

► **EQUAL** access to the world's minerals for all peaceful nations lies at the very heart of the problem of world peace, Dr. Charles K. Leith, University of Wisconsin geologist and leading government consultant, has declared.

Some wise administration must be devised, Dr. Leith said, to withhold the minerals so necessary to war-making from nations that threaten the peace of the world.

"Minerals are irreplaceable assets which are being depleted at an alarming rate," Dr. Leith declared. "No nation has enough of all commercial minerals. The United States is better supplied than any other nation, but during the war it has had to import about 70 varieties of minerals. Interdependence of nations as to minerals is a physical fact, not theory.

"Since the first World War, as nations have waked up to the overwhelming importance of mineral supplies both for their future industry and for their security, there has been a world-wide

scramble to control them, resulting in growing international friction. The degree of success in acquiring mineral supplies measures war-making power in these days of mechanized war. There now looms before us the problem of equal access to the world's minerals."

An adequate answer to world mineral control will require not only international cooperation based on goodwill and pious hopes, but a very high order of scientific fact-finding and analysis, Dr. Leith said.

"The United States and the British Empire have been leaders in the development of the world's minerals," he explained. "Between them they control politically and commercially nearly three-fourths of the world's known mineral reserves. Whatever their attitude may be it is obviously a critical factor in finding an answer."

Dr. Leith spoke during the intermission of a New York Philharmonic Symphony broadcast over CBS sponsored by the U. S. Rubber Company.

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CHEMISTRY

Eliminates Gypsy Moths

► **THE GYPSY** moth, which has damaged so many fruit, shade and forest trees within the state, can be completely eliminated from Pennsylvania within a few years, Miles Horst, Pennsylvania Secretary of Agriculture, stated after inspecting areas sprayed with DDT by airplane.

Visiting officials found that in large areas of forest land infested with gypsy moths, airplane spraying with a fine mist of DDT over tree tops kills all the caterpillars.

In areas where airplanes cannot be used to advantage, it is believed that the caterpillar, termed by Secretary Horst the most destructive plant pest of the northeastern states, can be eliminated by spraying the DDT solution on the tree trunks. This would take advantage of the caterpillar's habit of deserting the tree-top feeding ground just before daylight and crawling down the trunk to hide under sticks, stones and leaves. Coming into contact with the spray residue on the trunk, the worm would soon die.

The inspection party, composed of agricultural and forestry officials of New York and Pennsylvania, started at sunrise to watch two airplanes scatter DDT over large woodland areas. Visiting several sections sprayed two and three weeks ago, they found the pests had been wiped out. The party also inspected a 20-acre isolated woodlot in Lackawanna County treated experimentally with DDT by plane a year ago and found no moths, egg clusters or caterpillars, indicating that a single spraying had completely destroyed the pest.

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Two planes are spraying with DDT nearly 3,000 acres of the 600 infested square miles in Carbon, Luzerne and Lackawanna Counties. The gypsy moth has been confined to this area by State and Federal control work over the past 12 years at a cost of about \$6,000,000.

New York State has 6,000 square miles

of moth-infested territory, heaviest along the eastern edge. Connecticut, Massachusetts and Vermont have fought the insect for many years. Last year more than 250,000 acres of trees were completely defoliated by the pest in the New England states alone. The use of DDT, however, may change all this.

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BACTERIOLOGY

Leads Double Life

The leprosy germ has at times a rod form, and at other times a granule or spore-like form. This makes detection of bacilli difficult.

► THE LEPROSY germ, like that of tuberculosis, may lead a double life, at times going through a phase in which it has rod-like form and at other times having a granule or spore-like form, Dr. Eleanor Alexander-Jackson, of Cornell University Medical College, reports. (*Science*, June 1).

This finding may explain, she believes, why leprosy has such a long incubation period and why it is difficult to find the bacilli in certain kinds of leprosy sores.

The discovery was made on material obtained at the Branch Laboratory of the New York State Department of Health from the nasal septum of a Mexican with an early case of leprosy. Dr. Alexander-Jackson used a triple-stain

technique which has been successfully used to detect the tuberculosis mycobacterium. It causes one form of that germ to stain red, and other forms to stain blue, while other organisms, tissue cells, etc., form a light green background.

Unfortunately, when the case was diagnosed as leprosy, the patient suddenly disappeared, making it impossible to obtain further smears for study. But Dr. Alexander-Jackson believes the results she has already obtained from 32 smears of this and other patients from the U. S. Marine Hospital at Carville, La., and from Willard Parker Hospital, to be significant enough to encourage further use of the triple-stain technique.

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ARC WELDED—These smokestacks, replacing those of conventional design, tower over this industrial scene and signify the importance of the electric arc process in steel mill maintenance. Photograph by the Lincoln Electric Company

people cling to their self-respect even when, in the eyes of the rest of the world, they must share responsibility with their leaders for serious crimes against all humanity. For when a man loses not only the respect of other men but his own as well, there is no longer any hope of his being a useful member of society. Either he kills himself or he abandons any attempt to do what is right and what is expected by one man of another.

What hope there is for building a decent society in what was Germany lies, psychologists believe, in building up on this stubborn remnant of self-respect. Keep the German people from letting go of it and saying to themselves, "I can't help what I do, I am no good." Encourage them, instead, to feel a responsibility for demonstrating to all the world that they are worthy not only of their own self-respect, but the respect of other men as well.

For example, in a declaration of the basic facts regarding human nature that must be considered to attain a lasting peace, more than 2,000 American psychologists agreed that:

"Liberated and enemy peoples must participate in planning their own destiny. Complete outside authority imposed on liberated and enemy peoples without any participation by them will not be

PSYCHOLOGY

Lack of Shame Normal

The stubborn refusal of individual Germans to admit any guilt in war crimes is due to natural defense of human mind against loss of self-respect.

► REPORTS indicate that the German people do not feel any sense of shame or guilt, either personal or national, over the cruelties inflicted on prisoners and on the people of other nations.

It is not surprising. Even the most vicious criminal may have no feeling of guilt when he is brought to justice; instead he is likely to feel that he has been "framed" and be sorry for himself.

The explanation is that the deepest, strongest need of human nature—stronger almost than the need for life itself—is the need for self-respect. No one can bear to face the thought that he is fundamentally wrong or evil.

When a man is faced with undeniable

evidence of his own guilt, his mind automatically builds up defenses. He refuses to believe that his acts have had such ill effects; he says to himself that he was forced to commit the crimes, that he acted in self-defense; someone else was responsible; or perhaps he says to himself that his victims were not quite human, anyway, and so were not capable of feeling as you or I would about the torture.

Such self-deception is not healthy. But it is better than it would be for a man to admit in his own heart that he is guilty of crimes all the rest of mankind abhors.

It is a good thing that the German

accepted and will lead only to further disruptions of the peace. The common people of all countries must not only feel their political and economic future holds genuine hope for themselves and for their children, but must also feel that they themselves have the responsibility for its achievement."

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AERONAUTICS

Airplane Will Furnish Primary Policing Medium

► **USE** of the airplane as a policing medium for world security to prevent acres of gas-filled rockets from being aimed by enemies at distant cities was predicted by T. P. Wright, U. S. Administrator of Civil Aeronautics, in delivering the thirty-third Wilbur Wright Memorial Lecture before the Royal Aeronautical Society. He pointed out that while attempts at inaugurating security organizations heretofore were not successful because of the absence of a suitable policing medium, the airplane promises to fulfill that need.

Mr. Wright declared that we are "on the threshold of the greatest period of aeronautical development that has yet been witnessed." He cited as items which may completely change aviation technique the gas turbine, jet propulsion, electronic devices which will make all-weather flight safe and practicable, and advanced designs of private planes and the helicopter. He estimated that in the postwar years the aviation industry will employ over 600,000 people, 12 times as many people as it did before the war, and will carry 20 million passengers a year on U. S. lines at speeds of 300 miles an hour and at a cost of three cents a mile. At this estimated rate you could fly from New York to Chicago for \$22.26 instead of today's fare \$38.40. Fares from New York to Washington would be \$6.87 and from New York to Los Angeles about \$78.

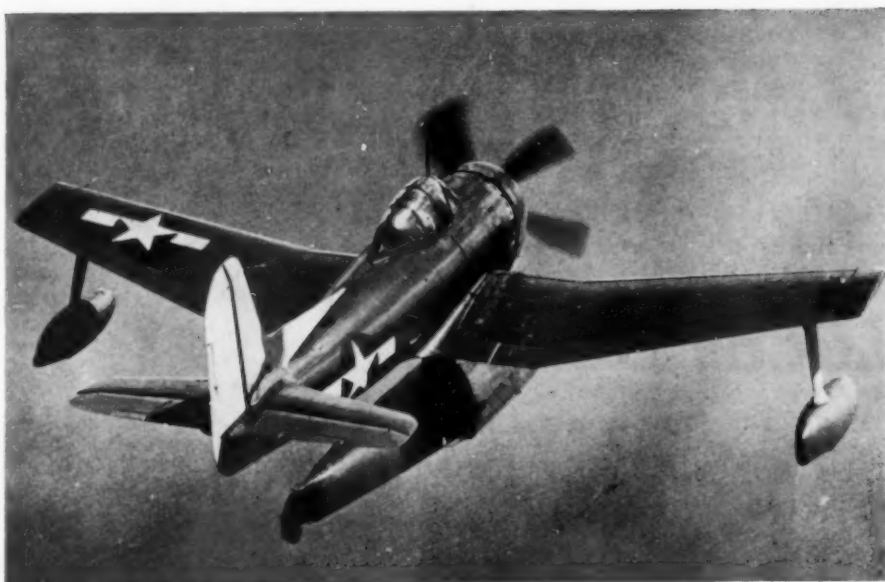
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PUBLIC HEALTH

Varnish Makers Protected From Skin Irritation

► **PERSONS** working with cashew nut shell oil, used in the manufacture of varnishes and resins, may now be saved from skin infection by a protective cream. A New Jersey plant discovered that the poison ivy protective cream developed by the U. S. Public Health Service was effective in this case also.

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CLIMBING—Skillful design of this new bird, the "Eye of the Fleet", is dramatically shown in this view as it soars from the water. Note pronounced dihedral angle of the wings for greater stability.

AERONAUTICS

Speed Doubled

The Navy's new observation-scout plane, designated the SC "Seahawk," can fly higher and farther than any previous Navy models.

► **LAUNCHED** into active combat from battleship and cruiser catapults recently, for the first time, is the Navy's new observation-scout airplane that is reported to be twice as fast, and can fly higher and farther than any previous Navy models.

Designated the SC, "Seahawk," this new scouting airplane has a single float, and low wing construction, plus nearly three times the horsepower of the OS2U "Kingfisher," the plane used up to now for such work.

The fundamental jobs of the SC are to scout for enemy fleet units, to spot gunfire both in sea actions and in the shelling of enemy shore batteries during landing operations, and to act as an air-sea rescue plane. While the Seahawk is fitted to carry only the pilot, a bunk can be arranged back of the pilot seat into which one man may crawl.

Observation-scout planes are usually considered easy targets for the enemy. With its greatly increased speed and maneuverability, plus added fire power and its ability to carry bombs and depth charges in the float, the SC introduces

into warfare a formidable weapon for use against the enemy in an emergency.

Both airplane and engine are designed and built by the Curtiss-Wright Corporation. The SC uses the newest air-cooled airplane engine in production, the Cyclone 9, which is reported to generate more power per pound weight than any other engine for aircraft in the world. The new engine generates more than 1,200 horsepower, greater than the horsepower of the engine used on the B-17 Flying Fortress, producing more than one horsepower for every pound of weight.

According to P. B. Taylor, vice-president of Wright Aeronautical, the new engine has the power of more than 25 automobiles, power enough to generate current to operate the Empire State Building, and more power than most heavy-duty tugboats.

The Seahawk is equipped with a four-blade hollow-steel propeller that has an unusually wide blade, designed to provide the tremendous thrust necessary to the airplane's fast rate of climb, and cruising efficiency at high altitude. The

propeller looks more like a canoe paddle than a conventional propeller.

Due to the heavy strain imposed on the pedestal attaching the float to the fuselage, a strain which may be equal in force to six times the weight of the entire airplane, engineers designed a strut strong enough to withstand six G's without snapping off.

The SC was designed by 35-year-old Bruce Eaton of the Curtiss-Wright Cor-

poration. He received his M.S. degree in aeronautical engineering at the Massachusetts Institute of Technology in 1932 and for several years has been in charge of wind tunnel research at Buffalo, N. Y. He is credited with the design and development of the modern system of automatic wind tunnel balances, an important aid to testing plane models before "life-size" prototypes are built.

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OPTICS

Bronchoscope for Planes

The same instrument that doctors use to find a pin in the baby's lungs now used to inspect almost inaccessible spots around aircraft motors.

► OPTICAL instruments are playing an important part in aircraft manufacturing, particularly for photographing or visually inspecting concealed spots that cannot be examined otherwise without inconvenient and expensive removal of some parts of the structure. The use of such instruments, in redesigned form, was explained at the meeting of the Aviation War Conference of the American Society of Mechanical Engineers by Milton Gray of the Erb and Gray Scientific Instrument Co.

A small-bore periscopic device, borrowed from the field of medicine where it is known as the cystoscope or bronchoscope, is used, he said, to inspect almost

inaccessible spots around aircraft motors, hydraulic systems, control housing and other installations having small apertures for insertion of an instrument. The bore inspection telescope, originally designed to inspect riflings and internal finish of big gun barrels, especially redesigned for the purpose, is similarly used.

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Standards Control

The necessity and value of applying well-standardized statistical methods to quality control in aircraft manufacture was emphasized by John Howell, of

Northrop Aircraft, Inc., at the same meeting. Such methods, he said, can be used in two principal phases of the problem, process control in the plant, and quality assurance with respect to materials and parts acquired elsewhere. The methods, involving the use of control charts and requiring only simple arithmetic, have been widely used in industry for a number of years, he added.

"Quality does not happen, it must be planned," Mr. Howell declared. "Quality has its beginning in the design of a product. If the design is good, the chances for good quality are much better than if the design is poor. In order for design to be good, the designer must know the capabilities and limitations of equipment at hand and available.

"The knowledge is most readily obtained by the quality control records of previous product," he continued. "The setting of quality standards and establishment of acceptable quality level is an engineering problem with which the statistician can lend valuable assistance."

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Heater Ignition System

The physical principles governing the design of an ignition system for aircraft internal combustion heaters were discussed at the meeting by Dr. E. H. Plesset and others of the Douglas Aircraft Company, Inc. Essentials, they stated, are a spark plug with relatively low thermal conductivity, high resistance to chemical attack, high thermal shock resistance, and high dielectric strength. Also important are the relative positions of the gasoline spray, spark plug and gap and inlet air.

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CHEMISTRY

Dr. Frederick T. Wall Gets \$1,000 Chemical Prize

► DR. FREDERICK T. Wall, associate professor of physical chemistry at the University of Illinois, has become the outstanding young chemist of the year as the result of the award to him of the \$1,000 American Chemical Society pure chemistry prize. Dr. Wall is only 33.

This prize is awarded annually to encourage fundamental studies by young chemists and it is provided by the Alpha Chi Sigma, national scientific fraternity. Dr. Wall was cited for his independent and original researches on the thermodynamic and statistical mechanics of polymers.

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SPACE SAVER—Folding wings are a new feature for a Navy scout-observation seaplane. Shown here on its beaching gear, the new Curtiss Seahawk occupies less space aboard its ship. Official U. S. Navy photographs.

ENTOMOLOGY

Grasshoppers, Chinchbugs Held in Check by Weather

► **PERSISTENT** wet, chilly weather in the principal crop areas, which has had farmers worried all spring, has been a blessing in dripping disguise in at least one way: grasshoppers and chinchbugs, the two worst insect enemies of growing grain crops, have been held well in check. Both these pests require warm, sunny weather for their full development, and they haven't been getting it. Only in the Southwest, where there has been hot drought, have the 'hoppers been bothersome.

Both grasshoppers and chinchbugs might raise trouble if dry, warm weather were to come now, surveys by entomologists of the U. S. Department of Agriculture indicate. Last year's swarms of grasshoppers matured rather late, but prolonged warm weather in autumn gave them opportunity to lay about the normal number of eggs in the soil. Also, there were unusual numbers of chinchbugs that went into hibernation. Thus far, the eggs remain largely unhatched and the bugs are still inactive, and as long as the weather stays cool the situation will remain "as is."

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ASTRONOMY

Gases from Sun's Cloud Absorbed by Prominence

► **GASES** from one of the sun's flame-like clouds, thousands of miles above a group of sunspots, instead of being sucked into the sunspots, were absorbed by a neighboring prominence of fiery gases, Dr. Edison Pettit of Mount Wilson Observatory reported to the Astronomical Society of the Pacific.

Occasionally one member of a group of prominences, in which gases moved from one to another within the group, has been a rapidly-changing active prominence, but this was the first time on record, Dr. Pettit stated, when a cloud prominence formed out of gases in the corona high above a group of sunspots was known to be absorbed by a neighboring prominence. The large group of prominences was located between a sunspot group and a disturbed region where spots later developed.

The rosy cloud of luminescent hydrogen, helium and calcium probably lasted at least two days. After forming, the fiery cloud as a whole remained in the same position throughout the first day,

only one part being known to move. During the second day, however, as part of the cloud floated toward the other prominence, its velocity more than tripled, increasing from about 11 miles a second to some 38 miles a second.

It is through studies such as this that astronomers hope eventually to discover the secret of the forces acting in and above the sun's surface.

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ASTRONOMY

Faint Comet Discovered By du Toit in Africa

► **A NEW** comet, named du Toit for its discoverer, has been speeding across the heavens during the past two months. The faint comet, discovered by a member of the Harvard Observatory staff at Bloemfontein, South Africa, has been watched by astronomers in South Africa as it traveled from the constellation of Leo, the lion, to Hydra, the water monster.

In April Harvard's South Africa station radioed that the tenth magnitude comet had been discovered on April 9. As the object was not found on plates of the region made at the Harvard Observatory, however, Dr. Harlow Shapley, director of the observatory, withheld announcement and wrote for confirmation.

Harvard has just received a second radio message, presumably in reply to Dr. Shapley's letter, stating that the new comet du Toit has been observed continuously for two months by both the Boyden station at Bloemfontein and the Union Observatory at Johannesburg. Dr. J. Jackson, director of the Royal Observatory of Capetown, has computed the approximate orbit of the comet which is now so faint as to be beyond the limit of the ten-inch photographic telescope.

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MILITARY SCIENCE

New Use for Surgical Masks Found by Marines

► **THE MARINES** have discovered a new battle use for surgical masks, the squares of cotton gauze that doctors and hospital staffs wear when performing operations and when working with patients who have contagious diseases. During the invasion of Iwo Jima, they used 5,000 such masks, supplied by the American Red Cross, as protection for nasal passages against irritating sulfur dust and volcanic ash which clouded the air over the strategic island.

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IN SCIENCE

CHEMISTRY-BACTERIOLOGY

Chemical Stops TB Germs In Test-Tube Experiments

► **DISCOVERY** of a new anti-germ mold chemical that stops human tuberculosis bacilli in test-tube experiments is announced by Dr. Isadore E. Gerber and Milton Gross, of the Hudson County Tuberculosis Hospital in Jersey City. (*Science*, June 15.)

Whether the new substance will prove effective in treating tuberculosis is not stated in the scientific report, which covers only preliminary study of the substance. Penicillin, most famous of the mold anti-germ chemicals, has no effect on tuberculosis germs.

The mold from which the new substance was extracted has not yet been completely identified but is one of a group of Aspergillaceae, of which family *Penicillium* is also a member. The scientists are now striving to isolate and purify the active material in the mold extract and determine the growth conditions necessary for best yield.

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ENGINEERING

Glass-Enclosed Penthouse Gives Unobstructed View

► **LIKE** a greenhouse perched on top of a streamlined railway coach, a new glass-enclosed penthouse will give passengers an unobstructed view of passing scenery—looking up as well as sideways. The new addition to railway coaches is a raised compartment, built into the roof of the car, the top and sides of which are laminated glass.

The new idea in railway coaches, developed by General Motors engineers, goes into service this month on the Burlington Lines, adding the glass-top coach to the list of other vehicles that make use of glass to improve the range of vision of passengers, including glass-bottomed boats and glass-top taxicabs.

The air-conditioned penthouse is reached by a short stairway from the main coach compartment. It contains 24 deep-cushioned seats set high enough so that passengers' heads and shoulders are well above the train's roofline. The addition of the penthouse increases to 58 the seating capacity of the coach.

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ANCE FIELDS

ENGINEERING

Communication System Handles Three Services

► THE ARMY in its European campaign and the Pacific war has had a very versatile, compact and speedy radio communication system that can carry facsimile picture, telephone conversations and teletype messages all at the same time, Maj. Gen. George L. Van Deusen, chief of the Engineering and Technical Service of the Army's Signal Corps, revealed.

This very high frequency radio relay equipment, or VHF, as it is known for conciseness, has played an important part on every battlefield.

"It was just a matter of hours after the invasion of France before the commanders on the continent were in continuous radio contact with English stations over 100 miles away," Maj. Gen. Van Deusen explained, speaking as guest on the CBS program "Adventures in Science" directed by Watson Davis, director of Science Service. "Telephone messages were immediately followed by the transmission by facsimile of vital air reconnaissance information of military objectives."

Maj. Gen. Van Deusen quoted Gen. Omar Bradley as saying that "our rapid drive across France was dependent on a shoe string, and that shoe string was radio relay."

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ENGINEERING

Plastic Airplane Parts Win Hyatt Award

► FOR DESIGNING plastic airplane parts that saved weight and manufacturing time in fighting planes, William Iler Beach, chief plastic engineer of North American Aviation, Inc., Inglewood, Calif., was presented with the fourth annual John Wesley Hyatt award, carrying with it a gold medal and \$1,000.

In the B-25 Mitchell bomber alone, Mr. Beach's process of curing and shaping phenolic laminated plastics saved 141 pounds of weight and 120 man-hours of labor for each airplane as compared with the metal process formerly used.

Postwar uses foreseen for the new plastics forming method include shipping

containers for movie films, decorative tops for kitchen sinks, shoe stiffeners, chemical tanks and athletic equipment.

During the war the new laminates in addition to being used in airplane construction, have been used in ammunition boxes, chutes, hoppers, and nonmagnetic land mine covers.

To honor the founder of the plastics industry, who invented celluloid in 1867, the John Wesley Hyatt award was established in 1941 by the Hercules Powder Company.

Science News Letter, June 23, 1945

CHEMISTRY

Helium Gas Found Usable Instead of Air in Tires

► HELIUM, the exclusively American balloon gas, can be used economically to inflate the huge tires of passenger airliners, it has been found by engineers of the Consolidated Vultee Aircraft Corporation, in San Diego, Calif. Use of this gas instead of air saves weight and permits an increased payload.

Air required to fill the tires would weigh 180 pounds, as compared with 26 pounds for helium. Tests have proved that the puncture-proof tubes will hold the lighter helium gas at the required pressure. An ample supply of helium is available, as the government is now producing more than needed in balloons and dirigibles, and is releasing some for other uses.

Science News Letter, June 23, 1945

CHEMISTRY

Greenbacks Turn to Gold In South Pacific Area

► LETTUCE-GREEN paper money turns to gold in the jungles of the South Pacific, reports Lt. Charles E. O'Malley of the War Department. When banknotes first began coming back from the Pacific, the Treasury Department was startled by the appearance of "gold-backs" which have not been in circulation for over ten years. It seems that the bills are the usual green variety, but the humid heat and gases in the air had turned the green ink to a soft golden color.

Wear and tear on paper money is heaviest in the South Pacific, where the climate causes it to wilt, laminate, and discolor. The life expectancy of a dollar bill on Guadalcanal is about six months, as compared with more than two years of useful life in the United States. Finance officers report that it takes four times as long to count beaten-up bills.

Science News Letter, June 23, 1945

INVENTION

New Transplanting Tool Also Dusts Plants

► A NEW transplanting implement, that also gives the young plants a thorough treatment with insecticidal dust to protect them against pests in their first critical days outdoors, is the invention on which patent 2,376,970 was awarded to W. W. Keown of San Leandro, Calif. It consists essentially of an open-bottomed cylinder with a handle. Pushed over the young plant, it lifts it out of its growing bed with a block of soil around its roots. Pressed into place in the garden, it sets out the plant. A turn of the handle then releases a piston, which sucks in enough outside air to swirl a cloud of insecticidal dust out of a reservoir and thoroughly cover the foliage.

Science News Letter, June 23, 1945

CHEMISTRY

Purple Pears Harmless Unless Syrup Is Cloudy

► THE PINK and purple colors which sometimes develop in home-canned fruit are usually harmless. Apples, pears and quinces which may be pink, red, brown, blue or purple are all right to eat unless the syrup is cloudy, according to Dr. Charles T. Townsend, research associate in the Hooper Foundation on the San Francisco campus of the University of California.

Pigment-forming bacteria and yeasts, which cause spoilage in canned fruit, can easily be recognized by cloudiness of the syrup in addition to the color, and also by odor.

Science News Letter, June 23, 1945

GENERAL SCIENCE

Carty Gold Medal Given to Dr. William F. Durand

► THE CARTY Gold Medal of the National Academy of Sciences was presented to Dr. William F. Durand, veteran research engineer of Stanford University, who is now serving in the war effort as chairman of the division of engineering and industrial research of the National Research Council, and as a member of the National Advisory Committee for Aeronautics.

The Carty Medal, which carries with it a cash honorarium of \$2,500, is awarded every other year to a person who has made noteworthy and distinguished contributions in any field of science.

Science News Letter, June 23, 1945

PUBLIC HEALTH

Fight Against Syphilis

Venereal disease campaign placards, like War Loan posters, hang from lamp posts on Birmingham streets. 300,000 will have blood tested.

By JANE STAFFORD

See Front Cover

► BUY BONDS in the Seventh War Loan is big news in Birmingham, Ala., today, but even bigger news is buying health and freedom from disease through penicillin.

Walk down the business streets and you will read on hundreds of four-by-eight-foot posters, like those on the front cover of this SCIENCE NEWS LETTER, words which a few years ago would have been whispered, if uttered at all. This is the pioneer model city for penicillin's mass attack on syphilis and gonorrhea.

"Penicillin cures gonorrhea (the great crippler and sterilizer) in four hours."

"Treatment of syphilis with penicillin completed in nine days," the posters declare in giant letters. The penicillin is free; see your doctor or call the health department clinic, is the rest of the message on posters, billboards and cards in every street car and bus and many store windows.

The campaign against venereal disease now being waged (May 15-June 30) in Birmingham and Jefferson County started with a bill introduced into the Alabama legislature by State Senator Bruce Henderson, a plantation owner of Wilcox County. The bill, now a law, provides that all persons in Alabama between the ages of 14 and 50 shall have their blood examined for syphilis by an approved test and that persons who have syphilis must get treatment either from a physician or free through the State Health Department.

Faced with the task of making hundreds of thousands of blood tests and realizing that syphilis was only part of the venereal disease problem, state and local health authorities turned to the U. S. Public Health Service for aid.

Unusual Opportunity

Federal as well as state and county health authorities saw that this Alabama law provides an unusual opportunity to learn what can be done by a mass attack on venereal disease. Birmingham and surrounding Jefferson County were

chosen for a proving ground in an undertaking that is not only "unique in public health annals," according to the editor of the *Southern Medical Journal*, but which may point the way for other communities to wage more effective war against syphilis and gonorrhea.

The U. S. Public Health Service sent to Birmingham 10 medical officers in addition to the four already stationed there. It sent its Robert P. Anderson to pave the way with a high-pressure educational, publicity and advertising campaign. It set up three centers, or hospitals, for rapid treatment of syphilis. It provides penicillin free for treatment of syphilis and gonorrhea by either private physician or health department clinic.

To make the blood tests on every 14-to-50-year-old in Birmingham and Jefferson County (there are 300,000 of them), teams of skilled blood-testers were sent down from the U. S. Marine Hospital at Staten Island. This is the U. S. Public Health Service institution where Dr. John F. Mahoney less than two years ago gave the first reported penicillin treatments to syphilis patients.

The general staff for this mass attack on venereal disease is made up of Dr. R. R. Wolcott, of the U. S. Public Health Service; Jefferson County's own excellent health officer, Dr. George A. Denison, and Dr. W. H. Y. Smith, active and enthusiastic venereal disease control officer of the Alabama State Health Department. Working under them are hundreds of men and women, physicians, nurses, laboratory technicians, social workers, clerical workers.

Typical of the eager spirit of cooperation is the story Dr. Wolcott told of a physician who called up on a Sunday morning to say:

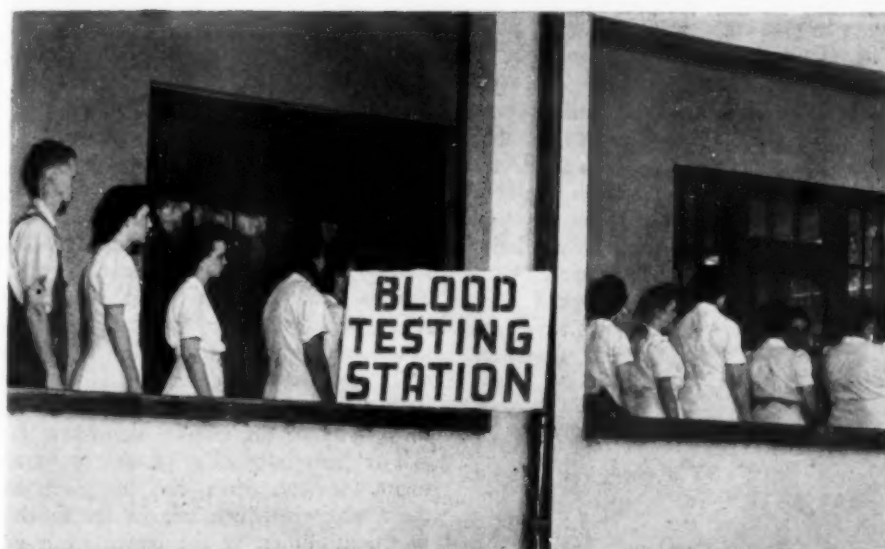
"I sent a load of patients to your treatment center yesterday so I know you will be busy today. This is Sunday and I am not working, so I wondered if I could come over and help you."

Remarkable, also, is the cooperative spirit shown by the residents of the community. Although the law requires the blood tests, no one yet has had to be forced to go for either blood test or treatment. In fact, those who have been told they need treatment are usually sitting on the porch with packed suitcase when the car arrives to take them to the treatment center.

The world's largest blood-testing laboratory has been set up for the campaign.



SYPHILIS TEST—Miss Lea Greenblatt, U. S. Public Health Service nurse, is taking blood to test syphilis.



HEALTH LINE—These citizens of Birmingham, Ala., are waiting their turn at one of the stations set up for blood tests in this venereal disease campaign.

"Willow Run" is the name they have given it because of the volume of work being done and the assembly line procedure.

Physically, the laboratory is not so large. But it is equipped and staffed to make 20,000 blood tests a day. At the start of the campaign, when only 5,000 tests were being done daily, the staff had finished work by 2 p.m. Working at a snail's pace, the skilled blood-testing teams can each do 3,200 tests a day. By the end of the second week of the campaign, 95,600 blood samples had been tested for syphilis.

The story of how the laboratory was created rivals the stories of the swift building of war production plants in the early days of the war. Jefferson County's health department has quarters in the old Hillman Hospital building, where formerly the county's charity patients were cared for. The only space available for the blood testing laboratory was a couple of dingy, dark and dirty basement rooms used to store pauper coffins.

No one believed it could be done, but within eight days these rooms had been transformed into a modern laboratory. Freshly painted white walls gleam under fluorescent lights. Rows of laboratory tables and sinks, centrifuges and drying ovens were installed. Shining glass partitions divide the rooms. A "flow sheet" tacked on the wall near the entrance adds to the "Willow Run" effect and efficiency.

If you want to know just what happens to that teaspoonful or so of blood taken from an arm vein, follow it along this unique assembly line as I did with

Joseph Portnoy, head of the blood-testing team loaned from the U. S. Marine Hospital at Staten Island, N. Y.

The blood samples arrive in small glass tubes, corked and labeled with a code number. They are uncorked and moved to centrifuges which can "spin down" 60 specimens at a time. The spinning down separates the red blood cells from the serum. Next stop on this assembly line is the "pour-off" table where a group of girls pour the clear serum into clean tubes. The code number labels are transferred at the same time.

Next the girls rack the tubes of serum in bright copper baskets and put these in a warm water bath for exactly 30 minutes. Alarm clocks in front of each water bath ring time on the procedure. Then the serums are ready for the test proper.

Sensitive and Quick

The one used here is the Mazzini microscopic flocculation test for syphilis. It was chosen from the many syphilis tests because it is both sensitive and quick. The teams of men who work on this job use glass slides about three-by-five inches in size. Each slide has 48 "cells," which are rings with paraffin walls. A special machine was devised to prepare the thousands of slides used here daily.

Into each ring the blood-tester puts a small, accurately measured amount of serum, placed in order according to the code number for each of the 48 bloods tested on each slide. He adds one single drop of a substance called antigen. The

glass slides are then rotated on a machine at 120 rotations per minute for four minutes. Great care is taken to make sure blood serum from one cell does not leak or jump into a neighboring cell.

After the rotation the slides are put under a microscope. Looking through the microscope you may see many tiny globules or particles. If these are bunched in clumps, the test is positive. If they are scattered, each lying by itself, the test is negative. When the result is doubtful, the test is repeated before the report is made. If the result is still doubtful, two more tests are made with fresh blood samples for each test. This is valuable for detecting syphilis in its early stages.

The very earliest stages of syphilis will not give a positive test, though the patient has the disease and can spread it to others. By the time the second or third sample of blood has been taken, however, the infection may have reached the stage where it will show in the blood test.

Then there is the problem of "dirty dishes" in the laboratory. After the tests have been made, tubes, slides and pipettes for measuring must be cleaned for the next day's work. This dish-washing also proceeds on an assembly line basis, since at least 20,000 tubes and 12,000 pipettes must be cleaned daily. Teams of men and girls work with brushes to get the blood clots out of the tubes and the clear serum poured out. Soak the



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Do You Know?

Blueberries are imported into the United States from Newfoundland.

A new variety of malting *barley* has been developed in Quebec.

Under favorable conditions, *halibut* enjoy a life span of 50 years.

Helicopters are being considered for use in fighting forest fires in the near future.

Cutworms often attack transplanted plants the first night after they are set out.

Popcorn was grown, popped and eaten by American Indians before white men settled the country; it is an Indian gift to the white man's palate and diet.

Plastics have been known for about 75 years, from the time when Hiatt discovered that camphor and cellulose nitrate make a plastic closely resembling ivory.

White pine blister rust, a *fungus* that kills five-needled pines, lives alternately on sugar pine and currant and gooseberry plants; it is controlled by eradicating wild currant and gooseberry plants.

Wilson's petrel, a bird found on the Maine coast, can be distinguished in flight from the Leach's petrel because his yellow feet extend beyond his tail; the other has black feet which do not project in flight.

Rose-colored *blossoms* top many fence posts for barbed wire in Cuba; the posts are young trees, easily propagated, straight-growing, without side branches, but with shoots left at the top to help keep life in the saplings.

NEW "PICK-UP" CANE

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tubes in soap suds for five minutes is the rule. They are rinsed not once but 18 times in clean water.

Working at six sinks, cleaning teams can wash 6,000 tubes every 15 minutes. The glass slides are soaked in alkali and rubbed with a window-polishing powder to remove paraffin, oil and other soil. Girls dry these slides with towels, being careful to handle them by their edges to avoid finger smudges that would interfere with the test. The blood tubes and pipettes are oven-dried because this is faster and better.

It looks like voting day at the blood collecting stations.

These are set up in a church or some other convenient neighborhood building. From early morning till about seven in the evening, men and women, and girls and boys over 14 years, line up before a team of clerks who take their names, addresses, phone numbers and ages, and give each person a card and a glass tube numbered to correspond with the number on the white card.

Instead of going to a voting booth, each person goes to a table where a nurse takes blood from an arm vein. The blood goes to the laboratory for testing. Its owner keeps the card and signs it. It certifies that he or she has "submitted blood for a blood test as required by Act 529, General Acts of Alabama, 1943."

Pink slips are made out in duplicate by the clerks. These have the same name-address-age information as the card, and the same number as the card and the tube of blood. They go to the huge tabulating center at the fair grounds. Here they are checked first with OPA records on ration book number three, to make sure that no one is missed in the blood testing. In case a person is ill and cannot go to a blood collecting station, his physician is responsible for getting the blood sample to the health department.

Records Checked

Next the records are checked with health department records of persons already known to be under treatment for syphilis. These can be discarded. Within 48 hours, usually, the code-numbered laboratory reports on the blood tests arrive at the tabulating center. When the test is negative, the record is dropped. Persons who do not hear from the health department within 72 hours may be sure that the report on their blood was negative. They do not have syphilis unless it is in such an early stage, shortly after infection, that it would not show on a blood test.

When the positive reports have been

correlated with pink slips showing name and address, the teams of investigators swing into action. These men and women, specially trained for the work, see each person who had a positive or doubtful blood test and explain that a second test and examination by a physician is necessary.

Such persons report to secondary collecting stations. To these stations also come any who suspect they have gonorrhea. The blood test for syphilis does not detect gonorrhea infection. The examination for that is made at the same time as the examination for syphilis and the taking of the second blood sample.

The four-hour, free-penicillin treatment for gonorrhea can be given at these stations which are in health department clinics, or the patients can go to their doctor's office. At the clinic, the treatment is given by couples, because if the husband has gonorrhea, the wife is also likely to have it. If there is a triangle situation, the other man or woman is sent for to have treatment on the same day—though at different hours. The penicillin is injected into the muscles, one dose every two hours for three doses.

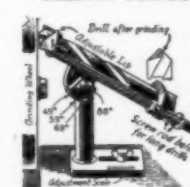
There are three rapid treatment centers for syphilis, the largest in buildings taken over from the Army near the Air Base. Sleeping quarters, cafeteria and other arrangements are very much GI. The other center I saw seemed more like a summer camp with even a swimming pool, and I learned it had been a girl's reformatory.

Men and women are segregated at all centers. Recreational facilities are provided, church services are held and the food is good, if plain. Educational posters and pamphlets on venereal diseases are plentiful.

At these centers, patients get injections of penicillin every three hours, day and night, for nine days. In addition, they get an injection of an arsenical drug every other day and of bismuth on the

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first, fifth and ninth days. A careful physical examination, including a spinal fluid test, is made when the patients enter the hospital.

The aim of this venereal disease campaign is to stop the spread of syphilis and gonorrhea by finding every infectious case and treating it to eradicate the infection. Late cases of syphilis which are non-infectious are not treated. How much of the venereal disease reservoir can be dried up by this mass attack will not be known until after the final tests are run.

Hundreds of thousands of men, women, boys and girls are being brought face to face, every day, on the streets, cars and buses, with the fact that syphilis and gonorrhea are crippling diseases. They are hearing it every 30 minutes on their radios. They are learning first-hand about the blood test for syphilis. Thousands of them are learning for the first time what these diseases are, the symptoms and effects, how they are caught and how quickly they can be treated and even cured in many cases. The hope is that this knowledge will arm them to some extent against future attacks of venereal disease.

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ENGINEERING

Light-Weight Concrete Is Termite-Proof, Cheap

► **LIGHT-WEIGHT** concrete material suitable for building construction, that is fire resistant, insulates against heat and cold, is non-rotting and termite-proof, and cheap to make, has been subjected to laboratory tests during the past year at the University of Michigan and found particularly satisfactory for farm structures where the raw materials are easily obtained. It is made from ordinary portland cement, organic and inorganic fibers, and a small quantity of certain inexpensive chemicals.

The cement in the mixture is the binder; the fibers, obtained from farm wastes, contribute the lightness and bulk, and the insulation properties; the chemicals lessen the amount of cement required, prevent harmful shrinking, and increase the strength. For fiber material, peanut hulls, cotton stalks, rice and wheat straw, cornstalks, flax shives and sawdust can be used. Among the best fibers are materials obtained from the northern jack pine, and winter-cut popple or aspen. Processing these woods is a simple grinding operation.

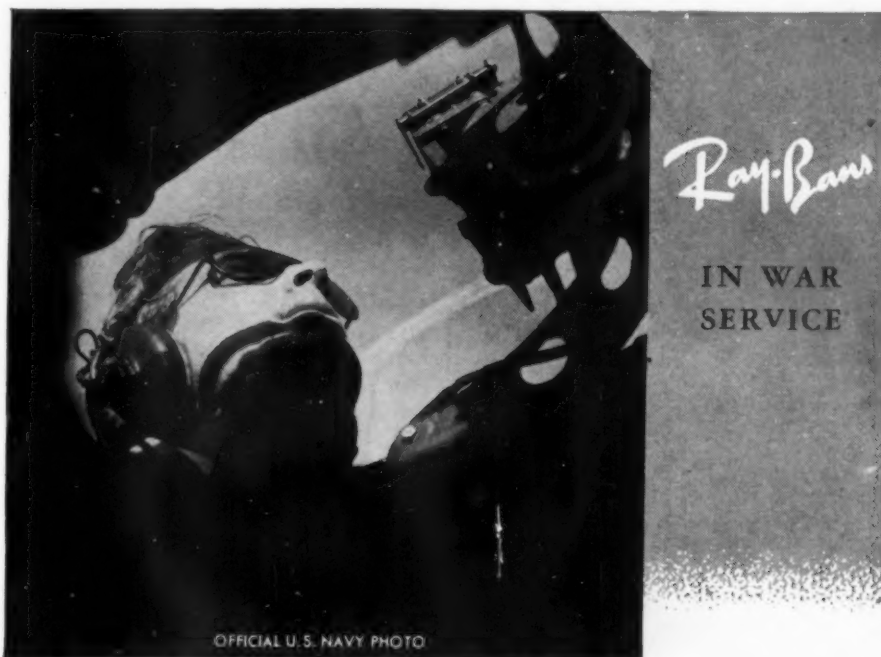
One of the disadvantages of this so-

called insulative concrete is that the fibers require special preparation to remove harmful juices. The juices in ordinary farm wastes, such as straw and cornstalks, usually contain substances that are harmful to the set of the cement. It is not difficult to remove them, but the special treatment requires a certain amount of time.

Proper mixing is also important. Ex-

isting concrete mixers are made to mix heavy ingredients and are not entirely suitable for mixing this bulky light-weight material. They can be used, however, by using slightly more water than is ordinarily considered desirable in cement mixing to obtain the best results.

The insulative concretes vary in weight from one-third to one-half that of ordinary gravel concrete, depending upon the



OFFICIAL U.S. NAVY PHOTO

Spotting the Enemy with RAY-BANS

In the top turret of a U. S. Navy Liberator this gunner spends hours upon hours of patrol duty—scanning the brilliant sky for enemy planes, while his crew mates search for submarines and surface craft. Ray-Ban Sun Glasses protect flyers' vision with cool, comfortable scientifically designed lenses and frames. Before the war, you saw Ray-Bans everywhere—at shooting ranges, at lake resorts, on the city streets. Today thousands of pairs of Ray-Bans are in use on the war fronts—protecting precious eyesight from punishing sun glare.



Shown are the distinctive Ray-Ban Sun Glasses and Ray-Ban Shooting Glasses. All Ray-Ban Sun Glass production is allocated to military use.

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mix. Insulative concrete at half the weight of ordinary concrete is more crack-resistant, and at one-third the weight has ample strength for building construction. Two-inch boards of the new material showed, in the tests here, almost as great insulation value as two layers of celotex between facings of plywood and having a total thickness of slightly over two inches.

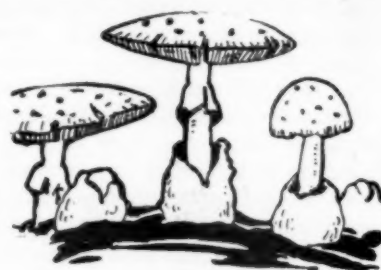
Slabs of insulative concrete will not support combustion, but will char when exposed to an intense heat such as a blow-

torch flame. In use the new material will probably usually be cast into slabs and fastened over the building frame.

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The lower estimates of the temperature of the centers of stars are in the tens of millions of degrees.

Bull moose have been found that stand seven and one-half feet high at the shoulders, weigh over 1,800 pounds, and with antlers spreading six feet or more.



Pass the Mushrooms!

► MUSHROOMS are unusually abundant this year, largely as a consequence of the persistently wet weather that has prevailed over the greater part of the country. In moist woodlands and wet meadows where they can commonly be found they are thicker and bigger than ever, and they are very apt to spring up in places where they have never been before—even in your own back yard.

Most people fail to benefit by such abundance because they are afraid of wild mushrooms. They will pay fancy prices for a little basket of the common field agaric from the store, and ignore or kick to pieces a clump of exactly the same species that springs up on the lawn. And certain wild species, like the inky-cap and the morel, which are far better than any "boughten" mushroom ever could be, they shun with a double dread simply because they are unfamiliar.

There is some justification for this attitude. To enjoy wild mushrooms with confidence and safety, you have to know them, species by species. There is no dependable rule-of-thumb test. All the supposed tests, like the blackening of a silver spoon or peeling the skin off the cap, are simply worthless. You've simply got to know your mushrooms.

One supposedly infallible test, which condemns mushrooms as poisonous if they are black underneath, runs exactly contrary to fact. The ordinary mushroom that you buy in the market, the only kind that the great majority of us ever get to eat, is black underneath when it is mature. So is that most delicious of all wild mushrooms, the inky-cap—as its name indicates.

On the contrary, the deadliest of all poisonous mushrooms, the Amanitas or death-cups, are innocently white under-

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neath. It is this genus that the amateur mushroom gatherer most needs to learn how to recognize and avoid. Various species of *Amanita* are most abundant, and none of them has any warning taste, as most of the other poisonous mushrooms have. You can cook yourself a nice Borgia banquet of these and be none the wiser until you start to die, so attractive and appetizing are these deceptive fungi.

It is easy enough to recognize an *Amanita*, however. It is the only mushroom that has a ring around the upper or middle part of its stalk and a cup at the base. Some mushrooms have a ring

but no cup; the common agaric of the market-place is one. Others have a cup but no ring; the genus *Lepiota*, most of whose species are edible, is an example. But if it has both ring and cup, let it alone!

Admittedly, this condemns one innocent species along with the guilty. Caesar's *Amanita*, found both in Europe and this country, has the forbidding ring-and-cup combination, yet is not only edible but one of the finest-flavored of all mushrooms. However, for safety's sake it is better for the beginner to give all *Amanitas* a wide berth.

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PRACTICAL MARKSMANSHIP—M. M. Johnson, Jr.—*Morrow*, 183 p., illus., \$2.50. A Study of the Technique of Field Firing. Introduction by Julian C. Smith.

SHORT STORIES OF SCIENCE AND INVENTION—Charles Franklin Kettering—*Educational Service, General Motors Corp.*, 116 p., paper, illus., free. This is the collection of radio talks heard on Sunday afternoons. They are good reading as well as good listening.

WARTIME TECHNOLOGICAL DEVELOPMENTS—Bureau of Labor Statistics—Supt. of Doc., 418 p., 50 cents. A study made for the Subcommittee on War Mobilization of the Committee on Military Affairs, United States Senate. Subcommittee Monograph No. 2.

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Books of the Week

BUILDING TRADES BLUEPRINT READING; part 1, Fundamentals, part 2, Specifications, blueprints and examinations—J. Ralph Dalzell—*Amer. Tech. Soc.*, 234 p., paper, illus., \$2 ea.

CINCHONA IN JAVA—Norman Taylor—*Greenberg*, 87 p., illus., \$2.50. Introduction by Pieter Honig.

FIBER TO FABRIC—M. D. Potter—*Gregg*, 314 p., illus., \$2. A Textbook on Textiles for the Consumer.

THE GOVERNING OF MEN: General Principles and Recommendations Based on Experience at a Japanese Relocation Camp—Alexander H. Leighton—*Princeton Univ. Press*, 404 p., illus., \$3.75. Published in cooperation with the American Council Institute of Pacific Relations, Inc.

HANDBOOK FOR SHELL COLLECTORS—Walter Freeman Webb—308 p., paper, illus., \$2.50. Illustrations and descriptions of shells from all parts of the world.

HUMAN ANATOMY AND PHYSIOLOGY—Nellie D. Millard and Barry G. King—*Saunders*, 514 p., illus., \$3. Second edition,

Reset. Textbook on elementary anatomy and physiology.

MAMMALS OF THE PACIFIC WORLD—T. D. Carter and others—*Macmillan*, 227 p., illus., \$3. The Pacific World Series. A paper bound edition of this book for the Armed Forces only, was published by the *Infantry Journal* under title of *ANIMALS OF THE PACIFIC WORLD*.

A MANUAL OF SOIL FUNGI—Joseph C. Gilman—*Collegiate Press*, 392 p., illus., \$5. A Book of the Iowa State College Press.

THE MEANING OF RELATIVITY—Albert Einstein—*Princeton Univ. Press*, 135 p., illus., \$2. 2nd. ed. with an appendix by the author discussing advances in the theory of relativity.

THE PEOPLES OF MALAYSIA—Fay-Cooper Cole—*Van Nostrand*, 354 p., illus., \$4. Includes the Philippines, Bali and Java, Borneo, British Malaysia and many of the South Pacific islands.

PHARMACEUTICAL CALCULATIONS—Willis T. Bradley and Carroll B. Gustafson—*Lea*, 283 p., \$2.75.

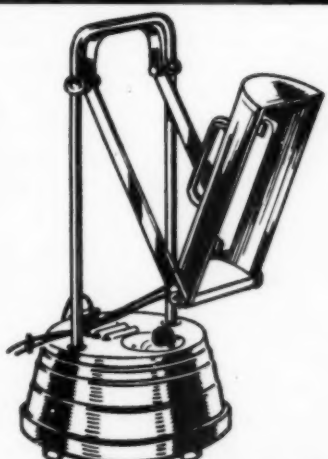
CHEMISTRY

Synthetic Wool from Soybean Protein

► **PATENT 2,377,885** was given Oskar Huppert of Chicago, who has assigned it to the Glidden Company of Cleveland, for a process of manufacturing synthetic wool from soybean protein. His process for producing the artificial fiber consists of spinning an alkaline solution of soybean protein into a coagulating acid bath. The inventor claims an improvement in the preparation of the spinning solution consisting of hydrolyzing soya protein with pepsin in a hydrochloric acid solution whereby the degree of dispersion of the protein in the hydrochloric acid is increased.

No decomposition beyond the acid albumen stage takes place, and an alkaline solution is formed. This is aged before spinning.

Science News Letter, June 23, 1945



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❁ **PLASTIC DISKS**, soluble in seawater, are used to recover naval torpedoes fired in testing. The disks are mounted on chambers called test heads, that replace the war heads used in action. They dissolve after a short period in the water, releasing a long line and float to mark the sunken torpedo's position.

Science News Letter, June 23, 1945

❁ **ATTACHMENT** for power-driven lawn mowers has been devised by two national Capital parks employees in Washington, D. C., that enables the mowers to be used as cultivators and seeders. One machine with the attachment can seed as much lawn as 30 laborers.

Science News Letter, June 23, 1945

❁ **MOBILE** traffic control signal device consists of the familiar standard, with stop-go lights at its top, mounted in a vehicle to take it to a street crossing where it may be needed temporarily. The vehicle carries a battery to operate the lights.

Science News Letter, June 23, 1945

❁ **FACTORY-ASSEMBLED** planking for highway grade crossings on railroads is made of pressure-creosoted hardwood in panels to fit between the tracks, with other panels outside each track. The five-inch thick strips, fastened rigidly together with spiral dowels, are unaffected by vibration.

Science News Letter, June 23, 1945

❁ **SUNSHINE** and rain are created in a machine used by a rubber company to test the effects of weather on a syn-



thetic rubber-like fabric. With the instrument, illustrated above, the effects of sunlight, periodic rain and temperature changes on the material can be determined in advance.

Science News Letter, June 23, 1945

❁ **RIVET SORTER**, used in an aircraft shop to separate salvaged rivets by lengths, sorts over 15,000 an hour. The rivets, dumped in a hopper, slide down a trough onto a slowly revolving circular plate, and are dropped by trippers of appropriate length into the proper can under the plate.

Science News Letter, June 23, 1945

❁ **SELF-HEATING** food container for

soldiers heats the contents without visible flame or smoke. Approximately 8 by 4 by 1 inches, it has interior compartments separated by inverted V-troughs with open ends. A combustible jelly-like substance, placed in the troughs, is lighted with a match.

Science News Letter, June 23, 1945

❁ **VOLTAMMETER** is an improved type of electrical measurement instrument that contains, in a single sturdy case, an AC voltmeter and an AC ammeter. When plugged into an electric current, this new speed-up instrument gives simultaneous readings of current and voltage.

Science News Letter, June 23, 1945

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 264.

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